

5%, such as 0.5 to 1.5%, and it will preferably be present as a potassium salt. The tooth pain inhibitor will usually be 2 to 10% of the composition, preferably 3 to 8% and the inhibitor will preferably be potassium nitrate or potassium citrate. When potassium pyrophosphate is not employed as the anti-tartar agent, so its potassium content is not present to help increase the pain inhibiting properties of the pain inhibitor other sources of potassium should be present, such as potassium fluoride, potassium saccharin, potassium detergent, etc., and the potassium content of the composition, in addition to the potassium of the pain inhibitor, should be in the range of 0.2 to 5%, preferably 0.5 to 3%, and such potassium should be in ionizable form. In such concentrations the potassium will improve desensitizing action of the tooth pain inhibitor and will not make the toothpaste or oral composition excessively salty. Of course, for other compositions which are normally more dilute (mouth washes, for example) or more concentrated, proportions of potassium may be adjusted accordingly.

The invention has been described in conjunction with illustrative embodiments thereof but is not to be considered to be limited to these because one of skill in the art will be able to utilize substitutes and equivalents thereof without departing from the bounds of the invention and the spirit thereof.

What is claimed is:

1. A desensitizing, anti-tartar toothpaste which comprises an orally acceptable vehicle or base for such composition, an effective anti-tartar proportion of (a) tetrasodium pyrophosphate, (b) disodium pyrophosphate, (c) mixtures of (a) and (b) or (d) mixtures of at least one of (a) and (b) with a potassium pyrophosphate, and a desensitizing proportion of a tooth pain inhibiting potassium salt which passes through exposed dentin tubules to tooth nerves or neurons, which tooth pain inhibiting potassium salt is potassium nitrate, potassium citrate, potassium oxalate or a mixture of two or more thereof, and which toothpaste comprises a pyrophosphate stabilizing proportion of a polymeric pyrophosphate stabilizer, wherein said stabilizer is a polymeric polycarboxylate, said stabilizer appearing to act to close off narrow tubules in the dentin and thereby block such tubules.

2. A toothpaste according to claim 1 wherein a water soluble fluoride is present.

3. A toothpaste according to claim 2 which comprises 0.5 to 5% of anionic surfactant, 10 to 50% of polishing agent, 10 to 50% of humectant, 0.2 to 5% of thickener, 1 to 5% of said pyrophosphate, 2 to 10% of said potassium nitrate, potassium citrate or a mixture thereof, 0.5 to 4% of said copolymer of maleic anhydride and/or maleic acid with vinyl methyl ether, said water soluble fluoride in a proportion to provide 100 to 2,300 p.p.m. of fluoride ion and 20 to 50% of water.

4. A toothpaste according to claim 3 wherein the anionic surfactant is an anionic detergent, the polishing agent is a siliceous polishing agent, the humectant is selected from the group consisting of glycerol, sorbitol and polyethylene glycol, and mixtures of two or more thereof, the thickener is selected from the group consisting of natural and synthetic gums and colloids, the pyrophosphate is a sodium pyrophosphate or a potassium pyrophosphate, the desensitizing compound is potassium nitrate, potassium citrate or a mixture thereof, the polyphosphate stabilizer is an alkali metal salt of said

copolymer and the water soluble fluoride is an alkali metal fluoride.

5. A toothpaste according to claim 4 which comprises 0.8 to 3% of alkali metal lauryl sulfate, 15 to 35% of silica, 15 to 40% of a mixture of two or more of glycerol, sorbitol and polyethylene glycol of molecular weight in the range of 200 to 1,000, 0.3 to 3% carrageenan, carboxymethylcellulose, xanthan or a mixture thereof, 1.5 to 4% of said sodium pyrophosphate or potassium pyrophosphate, 3 to 8% of potassium nitrate, 0.8 to 3% of potassium salt of said copolymer of maleic anhydride and/or maleic acid with vinyl methyl ether said copolymer being of a molecular weight in the range of 5,000 to 2,000,000, enough alkali metal fluoride to supply 400 to 1,500 p.p.m. of fluoride ion in the composition, and 25 to 45% of water.

6. A toothpaste according to claim 4 which comprises 0.8 to 3% of alkali metal lauryl sulfate, 15 to 35% of silica, 15 to 40% of a mixture of two or more of glycerol, sorbitol and polyethylene glycol of molecular weight in the range of 200 to 1,000, 0.3 to 3% of carrageenan, carboxymethylcellulose, xanthan or a mixture thereof, 1.5 to 4% of said sodium pyrophosphate or potassium pyrophosphate, 3 to 8% of potassium citrate, 0.8 to 3% of potassium salt of said copolymer of maleic anhydride and/or maleic acid with vinyl methyl ether, said copolymer being of a molecular weight in the range of 5,000 to 2,000,000, enough alkali metal fluoride to supply 400 to 1,500 p.p.m. of fluoride ion in the composition, and 25 to 45% of water.

7. A toothpaste according to claim 5 which comprises 0.8 to 1.5% of potassium lauryl sulfate, 15 to 30% of amorphous hydrated silica, 5 to 20% of glycerol, 5 to 25% of sorbitol, 1 to 10% of polyethylene glycol of molecular weight in the range of 400 to 800, 0.5 to 2% of carrageenan, 2 to 3% of tetrasodium pyrophosphate, 4 to 6% of potassium nitrate, 1 to 2% of neutral potassium salt of said copolymer of maleic anhydride and or maleic acid and vinyl methyl ether, said copolymer being of a molecular weight in the range of 50,000 to 1,100,000, by vapor pressure osmometry, 0.3 to 0.4% of potassium fluoride and 30 to 40% of water.

8. A toothpaste according to claim 6 which comprises 0.8 to 1.5% of potassium lauryl sulfate, 15 to 30% of amorphous hydrated silica, 5 to 20% of glycerol, 5 to 25% of sorbitol, 1 to 10% of polyethylene glycol of molecular weight in the range of 400 to 800, 0.5 to 2% of carrageenan, 2 to 3% of tetrasodium pyrophosphate, 4 to 6% of potassium titrate, 1 to 2% of neutral potassium salt of said copolymer of maleic anhydride or maleic acid and vinyl methyl ether, said copolymer being of a molecular weight in the range of 50,000 to 1,100,000, by vapor pressure osmometry, 0.3 to 0.4% of potassium fluoride and 30 to 40% of water.

9. A toothpaste according to claim 7 which comprises about 1.2% of potassium lauryl sulfate, about 23% of precipitated amorphous hydrated silica, about 10% of glycerol, about 16% of sorbitol, about 3% of polyethylene glycol of molecular weight of about 600, about 0.8% of carrageenan, about 2.5% of tetrasodium pyrophosphate, about 5% of potassium nitrate, about 1.5% of neutral potassium salt of said copolymer of maleic anhydride and/or maleic acid and vinyl methyl ether, said copolymer being of a molecular weight which is determined to be about 70,000 by vapor pressure osmometry, about 0.3% of potassium fluoride and about 30 to 35% of water.